

NEW CRANE FLIES (DIPTERA: LIMONIIDAE) FROM DOMINICAN AMBER

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Abstract.—Ten new species of crane flies including *Dicranomyia fera*, *Dicranomyia lema*, *Gnophomyia ieva*, *Gnophomyia martyni*, *Gonomyia asymmetrica*, *Polymera specula*, *Polymera virgo*, *Rhipidia mira*, *Styringomyia dominicana*, and *Trentepohlia agri*, (Diptera: Limoniidae) are described from Dominican amber.

Key Words: Dominican amber, *Dicranomyia*, *Gnophomyia*, *Gonomyia*, *Polymera*, *Rhipidia*, *Styringomyia*, *Trentepohlia*

Crane flies from Dominican amber have been little investigated. Krzeminski (1992) examined 18 specimens in the American Museum of Natural History, New York, and 34 specimens in the Smithsonian Institution, Washington, D. C. Thus far, the only species described has been *Molophilus (Miomolophilus) theischingeri* Krzeminski, 1992. This study describes species from the Poinar collection (36 specimens), maintained at Oregon State University, Corvallis, and from the collection of the Academy of Natural Sciences in Philadelphia (2 specimens; designated ANSP).

MATERIALS AND METHODS

These specimens are believed to have originated from mines in the Cordillera Septentrional of the Dominican Republic. These mines are in the El Mamey Formation (Upper Eocene), which is a shale-sandstone interspersed with a conglomerate of well-rounded pebbles (Eberle et al. 1980). The exact age of the amber is unknown. While estimates based on foraminifera indicated a range of 15–20 million years (Iturralde-Vincent and MacPhee 1996), studies with coccoliths provided an upper

range of 30–45 million years (Cepek 1990). Earlier studies with nuclear magnetic resonance gave an estimated range of 15–40 million years depending on the mine source (Lambert et al. 1985). Unfortunately, mine locality data of most specimens in this study were not available.

In the following descriptions, genitalia terminology and wing venation follows that presented in the "Manual of Nearctic Diptera" (McAlpine 1981). Thus *m-cu* and *CuA₁* are considered separate veins. Occasionally cross-vein *r* is used to show the position of *R₂* in relation to the longitudinal wing axis. Accession numbers pertaining to specimens in these collections are presented under the section "examined material."

Abbreviations used in the drawings are: *a*—aedeagus; *CuA₂*—anterior branch of cubitus; *dm*—discal medial cell; *gon*—gonocoxite; *i g*—inner gonostylus; *M*—media vein; *m-cu*—medial cubital cross vein; *o g*—outer gonostylus; *pm*—paramere; *R₁*—first branch of radius vein; *R₂*—second branch of radius vein; *R₂₊₃*—combined second and third radial veins; *Sc₁*—first subcost vein; *Sc₂*—second subcosta vein. We have used the *r* cross vein here to represent

a cross vein connecting R_1 with R_2 or one of the other radial sector veins.

HEXATOMINAE

Polymera (Polymera) specula Podenas and Poinar, new species

(Figs. 1–3)

Diagnosis.—General body coloration grayish brown. Antennae much longer than body. Macrotrichiae of moderate length on all longitudinal veins. Genitalia dark brown. Outgrowth of ninth tergite very long and narrow, more than half as long as gonocoxites; cross-vein *m-cu* situated before fork of *M*; cross-vein *r* distant from tip of R_1 .

Male.—Body length 3.05 mm, wing length 3.5 mm. Head, rostrum and antenna brown, the latter much longer than body; palpi covered with comparatively long bristles. Antenna (Fig. 3) 16-segmented, about 4.7 mm long; scape twice as long as wide; pedicel spherical, about half length of scape; postpedicel or first flagellar segment longer than both basal segments together; all flagellar segments elongate, slightly nodulose; flagellum with verticils about as long as respective segments; apical segment nearly as long as preceding segment.

Thorax brown, with dark brown lateral stripes. Coxae and trochanters brown; remainder of legs missing. Wing clear, brownish, without any darker marks. Venation typical for genus (Fig. 1): Sc_1 ending at level of *Rs* fork, Sc_2 near its tip; *Rs* more than four times as long as R_{2+3} , arcuated; *r* distinct; basal section of R_2 about equal to terminal section of R_1 ; *m-cu* shortly before fork of *M*; discal medial cell absent. Macrotrichiae on all longitudinal veins. Halter brown.

Abdomen brown. Genitalia dark brown (Fig. 2). Outgrowth of ninth tergite long and narrow.

Female.—Unknown.

Examined material.—Holotype ♂, specimen number D-7-204, deposited in the Poinar collection.

Discussion.—This new species is most

similar to *P. minutior* Alexander 1942 (known only from southern Ecuador) but differs from the latter by possessing a shorter *Sc* and Sc_2 being opposite the fork of *Rs*.

Polymera (Polymera) virgo Podenas and Poinar, new species

(Figs. 4–6)

Diagnosis.—General body coloration brown. Size comparatively large. Antennae much longer than body. Outgrowth of ninth tergite distally rounded; closed discal cell.

Male.—Body length 3.8 mm, wing length 4.3 mm. Head, rostrum and antenna brown; palpi lighter, covered with short hairs. Both antennae lacking 3 apical segments (Fig. 4); scape nearly twice as long as wide; pedicel spherical, about half length of scape; postpedicel or first flagellar segment more than twice as long as both basal segments together; flagellar segments elongated, slightly nodulose; flagellum with verticils longer than respective segments.

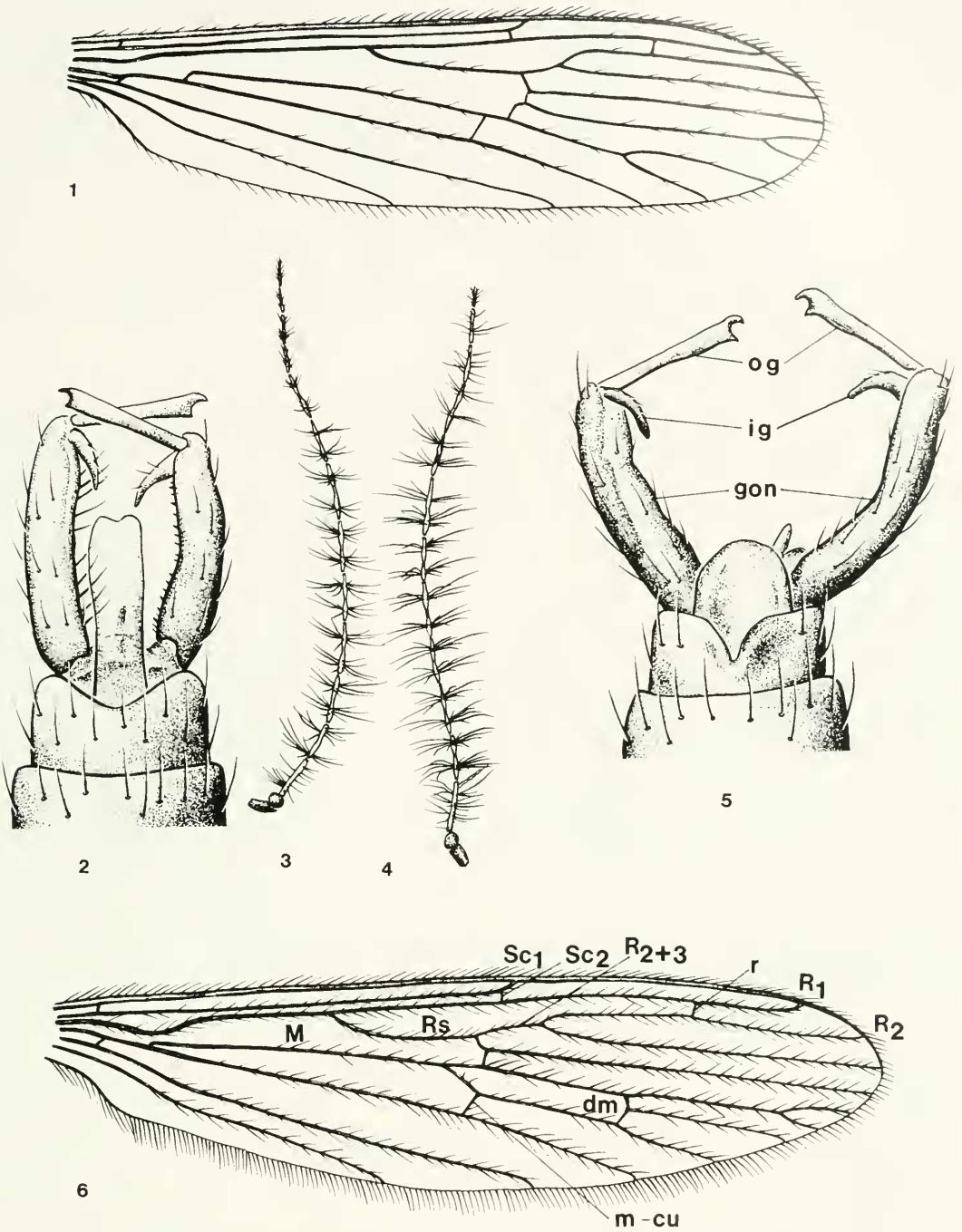
Thorax brown, with dark brown lateral bands. Legs brown. Femur 2: 3.2 mm, tibia 2: 3.3 mm (fore and hind legs missing). Wing clear, light brownish, without darker marks. Venation (Fig. 6): Sc_1 ending beyond level of *Rs* fork, Sc_2 near its tip; *Rs* twice as long as R_{2+3} , arcuated; *r* distinct; terminal section of R_1 about two thirds length of basal section of R_2 ; *m-cu* shortly beyond fork of *M*; discal medial cell present (unusual for genus). Macrotrichiae on all longitudinal veins. Stem of halter light brownish, knob slightly darker.

Abdomen brown. Genitalia same color as abdomen, details evident from Fig. 5. Outgrowth of ninth tergite distally rounded.

Female.—Unknown.

Examined material.—Holotype ♂, number D-7-205, deposited in the Poinar collection.

Discussion.—The only recent species of *Polymera* with closed discal cells are *P. clausa* Alexander 1939 (from Ecuador) and *P. neoclausula* Alexander 1967 (from Honduras). Both of these extant species are nearly twice the size of *P. virgo* and the *Sc*



Figs. 1-6. 1-3, *Polymera (Polymera) specula*, holotype. 1. Wing. 2. Male genitalia, dorsal view. 3. Antenna. 4-6, *P. (P.) virgo*, holotype. 4. Antenna without tip. 5. Male genitalia, dorsal view. 6. Wing. (See Materials and Methods for abbreviations.)

vein of *P. virgo* is intermediate in length between those of *P. clausa* and *P. neoclau-
sa*.

Polymera sp.
(Fig. 7)

Diagnosis.—General body coloration brown. Size comparatively large. Antennae much longer than entire body. Outgrowth of ninth tergite elongate and rounded at tip.

Male.—Body length 3.75 mm. Head, rostrum and antenna brown; palpi brown, covered with short hairs. Antenna 16-segmented, about 5.3 mm long; scape nearly as long as wide; pedicel spherical, about half length of scape; postpedicel or first flagellar segment three times as long as both basal segments together; all flagellar segments elongate, slightly nodulose; flagellum with verticils longer than respective segments; apical segment nearly as long as preceding segment.

Thorax brown, with dark brown lateral bands, prescutum with dark median stripe. Coxae and trochanters brown. Fore leg yellowish brown with darker femur, mid leg with dark brown femur, tibia lighter brown with dark brown apex, tarsus light brown with darker apical segment and tip of previous segment. Femur 1: 3.25, 2: 3.3 mm, tibia 1: 3.7, 2: 3.6 mm (posterior legs missing). Only bases of wings preserved, clear, whitish, with darker pigmentation along veins. Stem of halter brownish, knob brown.

Abdomen brown. Genitalia dark brown. Outgrowth of ninth tergite elongate (Fig. 7).

Female.—Unknown.

Examined material.—♂, number D-7-203, deposited in the Poinar collection.

Discussion.—This species differs from the others by the shape of the ninth tergite and antennae, but since nearly all the wings and apices of the terminalia are missing, there are not enough features to describe it as new, and it is not clear whether this species belongs to the subgenus *Polymera* Wiedemann, 1820.

Recent crane flies, belonging to the sub-

genus *Polymera* distributed in the Antilles are: *P. albitarsis albitarsis* Williston, 1896; *P. albitarsis dominicae* Alexander, 1926; *P. arawak* Alexander, 1964; *P. cavernicola* Alexander, 1964; *P. geniculata geniculata* Alexander, 1915; *P. geniculata pallipes* Alexander, 1964 (Alexander, 1970).

ERIOPTERINAE

Styringomyia dominicana Podenas and
Poinar, new species

(Figs. 8–11)

Diagnosis.—Small species with short wings. General body coloration yellowish brown. Head, body and legs covered with long stout bristles. Legs comparatively short. Male genitalia with short gonocoxites and long gonostyli which separates this species from all other members of the genus.

Male.—Body length 5.9 (holotype)—7.1 (paratype) mm; wing length 3.9 mm. Head brownish; rostrum yellowish brown, palpi covered with long, brown, strong bristles (from one third to half length of respective segment). Antenna (Fig. 10) 16-segmented, yellowish, 1.3 mm long; scape twice as long as wide; pedicel pyriform, about two-thirds length of scape; postpedicel or first flagellar segment comparatively short, nearly same length as pedicel, but more slender; all flagellar segments elongated, apical segments nearly cylindrical; flagellum with verticils about length of respective segments; apical segment nearly as long as preceding segment.

Dorsal part of thorax yellowish brown, prothorax large compared to meso and metathorax; prescutum with two brown lateral stripes (median stripe can be discolored), pleura with brown marks, (which may have been formed during oxidization in amber). Coxae, trochanters and rest of legs yellowish brown with tips of tibiae brown. Wing clear, without any darker marks. Venation as usual for genus (Fig. 11): very short vein *R*, not reaching mid-length of wing; radial sector (*Rs*) with only two apical branches; discal medial cell very



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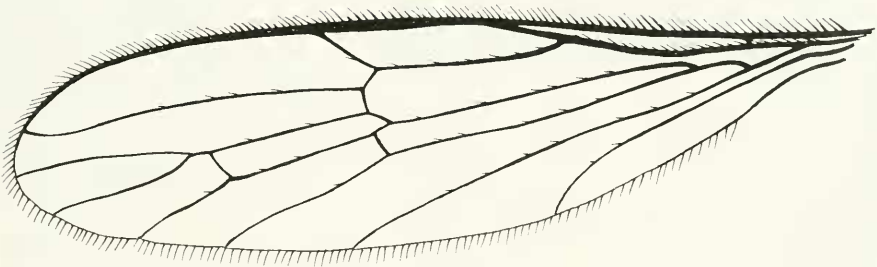
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Figs. 7-11. 7. *Polymera* sp., part of male genitalia, dorsolateral view. 8-11. *Styringomyia dominicana*. 8-9. Male genitalia, dorsal view. 8, Holotype. 9, Paratype. 10, Antenna, paratype. 11, Wing, holotype.

long and narrow, cell m_1 with short petiole, cross-vein $m-cu$ distal to base of discal medial cell. Halter brownish.

Abdomen and genitalia brownish, details evident from Figs. 8, 9 (some details of dististyles not seen in paratype).

Female.—Unknown.

Examined material.—Holotype ♂, number D-7-202, deposited in the Poinar collection.

Paratype ♂, number D-7-202A, deposited in the Poinar collection. Tips of wings and legs missing.

Discussion.—The genus *Styringomyia* Loew, 1845 was previously unknown from the Greater Antilles (Alexander 1970). This may be due to insufficient collections from this region. Recent species are found in Central and South America (Alexander 1970).

***Gnophomyia ieva* Podenas and Poinar,
new species
(Figs. 12–14)**

Diagnosis.—This is one of the smallest *Gnophomyia* species known; general body coloration brown; gonostyli long, slender and curved; inner gonostyli short and hooked apically, outer gonostyles longer, with basal portion enlarged and bearing a huge hook at their apices; separated from all other species by the Sc_2 far removed from the tip of Sc_1 , the position of $m-cu$ close to the fork of M and structure of the male genitalia.

Male.—Body length about 2.3 mm, wing length 2.5 mm. Head, rostrum, palpi and antenna yellowish brown. Antenna (Fig. 14) 16-segmented, 0.55 mm long; scape short, only 1.4 times as long as wide; pedicel pyriform, 1.7 times as long as scape; postpedicel or first flagellar segment short, subspherical, other flagellar segments ranging from elongate-oval to cylindrical, with conspicuous verticils that exceed segments in length; apical segment short, about half length of preceding segment.

Thorax brown; pleura lighter with indistinct longitudinal dark stripe. Legs yellow-

ish brown; tips of femora yellow with a rather broad, dark subterminal ring. Femur 1: 1.4, 2: 1.5, 3: 1.95 mm, tibia 2: 1.5, 3: 2.0 mm, tarsus 2: 1.45, 3: 1.4 mm. Wing subhyaline, brownish. Venation usual for genus (Fig. 12): Sc_1 relatively elongate, ending just before r , Sc_2 far removed from tip of Sc_1 , about opposite one-third length of Rs , Sc_1 thus about three-fourths length of Rs ; r about twice its own length beyond origin of R_2 and far from tip of R_1 ; distal section of R_1 about three-fourths length of Rs ; discal medial cell narrow, about 3.1 times as long as wide; crossvein $m-cu$ slightly beyond fork of M . Halter brownish yellow, 0.35 mm long.

Abdomen and genitalia brown, details evident from Fig. 13; inner and outer gonostyli hooked apically.

Female.—Generally similar to male; body and head with long conspicuous hairs, body 3.3 mm long. Head light brown with dark brown vertex; rostrum dark basally, lighter distally; palpi yellowish brown, 0.3 mm long; antenna with brown basal segments and yellowish brown flagellum, 1.0 mm in length.

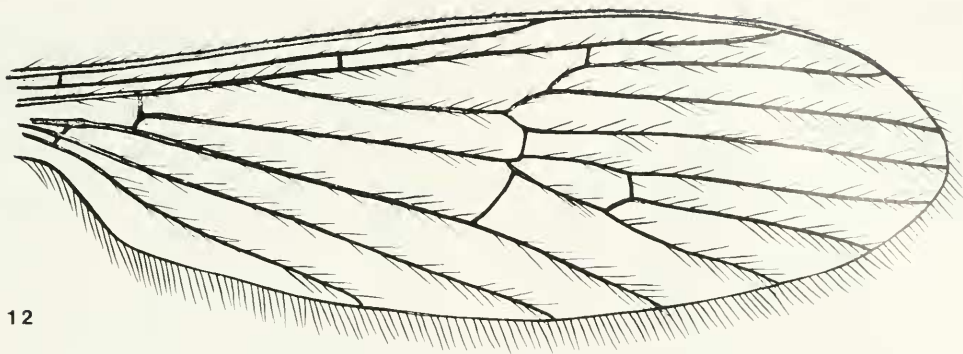
Thorax brown dorsally; pleura lighter with indistinct darker longitudinal stripe. Coxae, trochanters and rest of legs light brown with only tips of femora darker. Femur 1: 1.9 mm, tibia 1: 2.4 mm. Wing length 2.7 mm. Halter brownish yellow, 0.3 mm long, stem lighter, knob slightly darker.

Abdomen brown. Ovipositor brownish yellow.

Examined material.—Holotype ♂, number D-7-198, deposited in the Poinar collection.

Paratype ♀, number D-7-198A, deposited in the Poinar collection.

Discussion.—Similar long and slender gonostyles occur in *G. distifurcula* Alexander 1943 and *G. kerteszi* Alexander 1929, but both of these species have the shape of the ninth tergite and wing venation different (Sc_2 not far removed from Sc_1 tip and $m-cu$ distant to fork of M) from that of *G. ieva*.



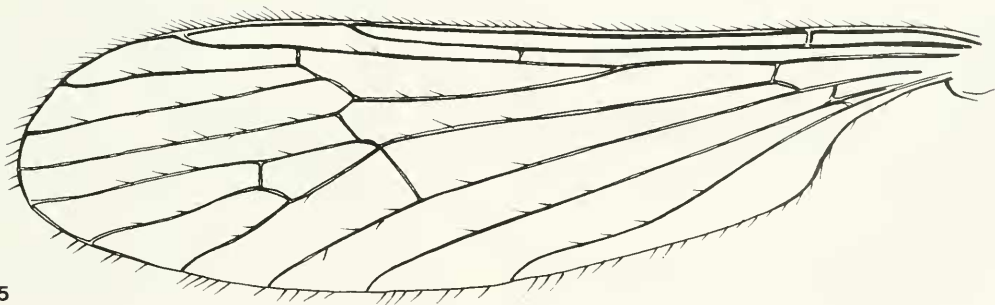
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Figs. 12-15. 12-14, *Gnophomyia ieva*, holotype. 12, Wing. 13, Male genitalia, dorsal view. 14, Antenna. 15, *G. martyni*, holotype, wing.

***Gnophomyia martyni* Podenas and Poinar, new species**

(Figs. 15–17)

Diagnosis.—This is one of the smaller species of *Gnophomyia*. General coloration yellowish brown; Male genitalia with bluntly terminated ninth tergite and long slender gonostyli, including a deeply bifurcated outer gonostylus.

Male.—Body length 2.4 mm, wing length 2.8 mm. Head yellowish brown with darker vertex; rostrum and palpi yellowish brown. Antenna (Fig. 17) 16-segmented, basal two segments yellowish brown, flagellum yellow; scape short, nearly as long as wide; pedicel oval, twice as long as scape; first flagellar segment very short, oval, other flagellar segments ranging from elongate-oval to cylindrical, with conspicuous verticils that exceed segments in length; apical segment long, only slightly shorter than preceding segment.

Thorax yellowish brown dorsally; pleura whitish yellow with longitudinal dark stripe. Coxae, trochanters and rest of legs yellowish brown. Femur 1: 1.8, 3: 2.1 mm, tibia 1: 2.1, 3: 2.4 mm, tarsus 1: 2.1, 3: 1.5 mm. Wing without any dark marks. Venation as usual for genus (Fig. 15): Sc_1 relatively elongate, ending before r , Sc_2 very far removed from tip of Sc_1 , about opposite one-third length of Rs ; Sc_1 about two thirds length of Rs ; r about 1.5 times its own length beyond origin of R_2 and far from tip of R_1 ; distal section of R_1 being less than half length of Rs ; discal medial cell narrow, about three times as long as wide; crossvein $m-cu$ joining fork of M . Halter yellow, 0.5 mm long.

Abdomen and genitalia yellowish brown; details of genitalia as in Fig. 16; outer arm of outer gonostylus straight, inner arm curved inward, inner gonostylus straight.

Female.—Unknown.

Examined material.—Holotype ♂, number D-7-199, deposited in the Poinar collection.

Discussion.—Both new fossil species of

Gnophomyia Osten Sacken, 1859, differ from extant species by the position of vein Sc_2 , which is far removed from the end of Sc_1 . Only *G. diazi* Alexander, 1937, occurs at present in the Antilles (Puerto Rico).

***Gonomyia (Paralipophleps) asymmetrica* Podenas and Poinar, new species**

(Figs. 18–20)

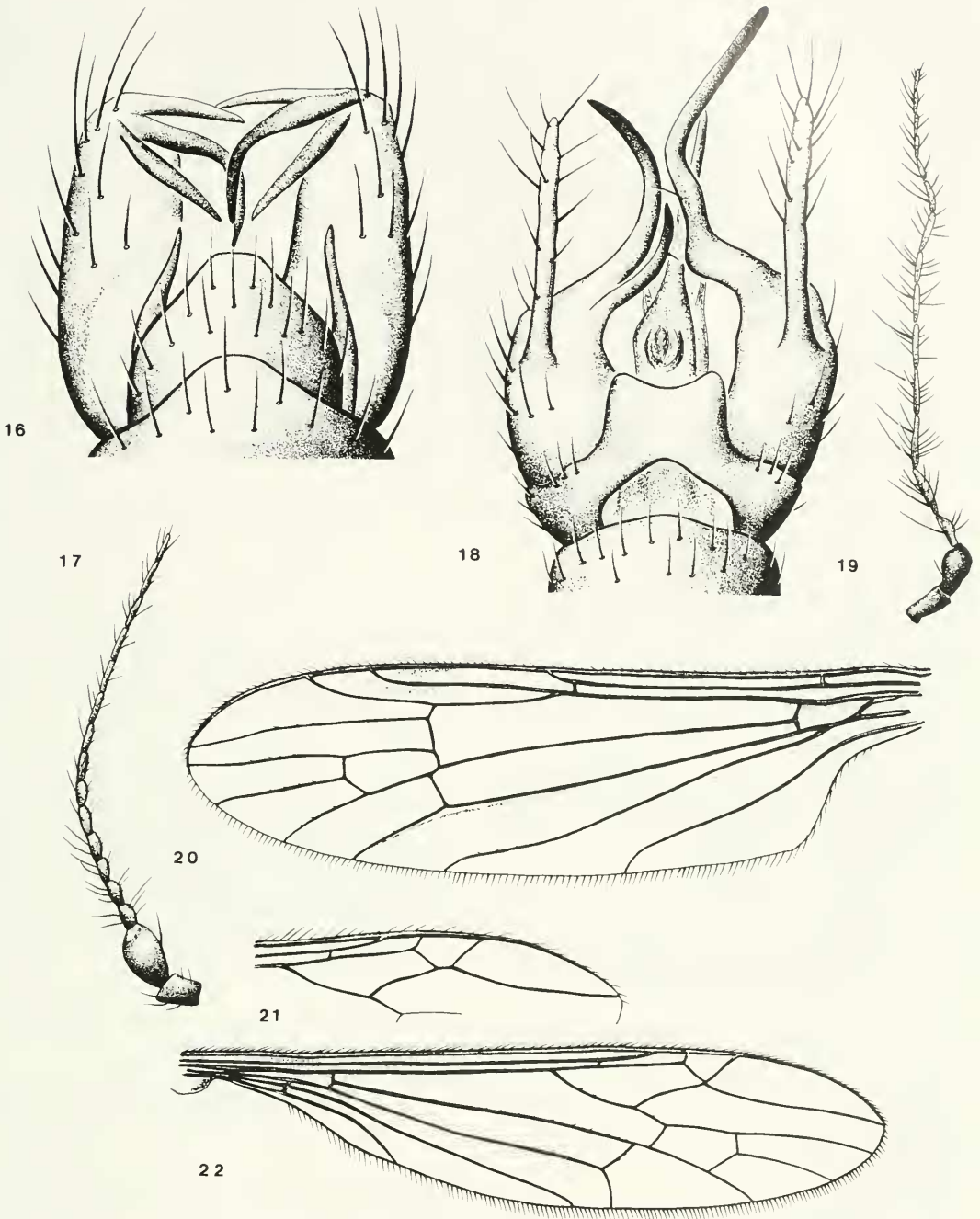
Diagnosis.—Size small for the subgenus. General body coloration yellowish brown; Rs beginning just before the end of Sc_1 ; $m-cu$ located beyond fork of M ; male genitalia, including hypopygium, asymmetrical.

Male.—Body length 3.0–4.2 mm. Head, rostrum, palpi and antenna brown. Antenna (Fig. 19) 16-segmented, 1.3 mm long; scape twice as long as wide; pedicel pyriform, about same length as scape; first flagellar segment about three-fourths length of pedicel, but narrower; all flagellar segments elongate with terminal segments nearly cylindrical; flagellum with verticils about as long as respective segments or slightly longer; apical segment nearly as long as preceding segment.

Dorsal part of thorax brown, pleura reddish brown. Coxae, trochanters and rest of legs brownish. Wing clear, without darker marks except very light stigma; wing length 2.6–3.2 mm. Venation as usual for subgenus (Fig. 20): Sc_1 reaching slightly beyond origin of Rs , Sc_2 about its length before origin of Rs , Rs very slightly curved, about same length as R_3 , Rs with only two branches; discal medial cell narrow, about 2.5 times as long as wide; crossvein $m-cu$ straight, more than 4.5 times as short as CuA_2 ; $m-cu$ placed clearly beyond fork of M . Halter brownish yellow, 0.45 mm long.

Abdomen and genitalia brownish yellow, genitalia asymmetrical with darker tips; details shown in Fig. 18.

Female.—Similar to male, 4.1 mm long. Head, rostrum, palpi and antenna brown. Antenna scarcely reaching base of wing when bent backwards; yellowish brown; flagellar segments elongate, apical segments shorter, nearly oval; flagellum with



Figs. 16–22. 16–17, *Gnophomyia martyni*, holotype. 16, Male genitalia, dorsal view. 17, Antenna. 18–20, *Gonomyia (Paralipophleps) asymmetrica*. 18, Male genitalia, dorsal view, holotype. 19, Antenna, paratype. 20, Wing, paratype. 21–22, *Trentepohlia (Paranongoma) agri*. 21, Wing tip of female, paratype. 22, Wing of male, paratype.

verticils about length of respective segments or slightly longer.

Thorax brown. Coxae and trochanters brown, legs becoming yellow distally. Femur 1: 1.9, 2: 2.1, 3: 2.5 mm, tibia 1: 3.1, 2: 2.95, 3: 3.3 mm, tarsus 1: 2.65, 2: 2.55, 3: 2.5 mm. Wing length 3.3 mm. Haltere brownish yellow, 0.4 mm long.

Abdomen brown. Ovipositor brown dorsally, yellow ventrally, cerci and hypovalves brown.

Examined material.—Holotype ♂, number D-7-196, deposited in the Poinar collection.

Paratypes: ♂, number D-7-196A (genitalia damaged); ♀, number D-7-196B ♀, number D-7-196C, in the Poinar collection.

Discussion.—This new species differs from others in *Gonomyia* Meigen (1818) by its asymmetric male genitalia, which are very unusual in crane flies. Recent species of *Paralipophleps* Alexander, 1947, are characterized by a dark wing stigma, which is very light in the new species, but this could be due to preservation conditions in the resin. Only *G. pleuralis* (Williston 1896), belonging to same subgenus as the new species, occurs in the Lesser Antilles today (St. Vincent).

Gonomyia sp.

This species differs from *G. asymmetrica* by the very short vein R_s , but the male genitalia are completely damaged. The female is well preserved.

Examined material.—fragments, number D-7-201, and ♀, number D-7-201A, both in the Poinar collection.

Since the male genitalia are damaged, it is difficult to place this species in the subgenus *Lipophleps* Bergroth, (1915) or *Paralipophleps* Alexander, (1947) because the light wing stigma may have been modified by preservation.

***Trentepohlia (Paramongoma) agri*
Podenas and Poinar, new species
(Figs. 21–24)**

Diagnosis.—The size is normal for members of this genus; male smaller than fe-

male. General body coloration brown, but some specimens are light or dark brown from changes occurring after entrapment in the resin; vein Sc_1 ends at one third length of R_{2+3} , Sc_2 ends opposite half length of R_s ; male with elongate cylindrical gonocoxites; gonostyli elongated, flattened, with a spine on their frontal surfaces.

Male.—Body length 4.5–5.5 mm, wing length 3.7–4.8 mm. Head brown, rostrum, palpi and antenna greyish-brown. Antenna 15-segmented, yellowish, 1 mm long; scape three times as long as wide; pedicel oval, about half length of scape; first flagellar segment shorter than pedicel; all flagellar segments oval, apical segments elongated (Fig. 23); flagellum with verticils shorter than respective segments; apical segment as long as preceding segment. Eyes approximate on top of head.

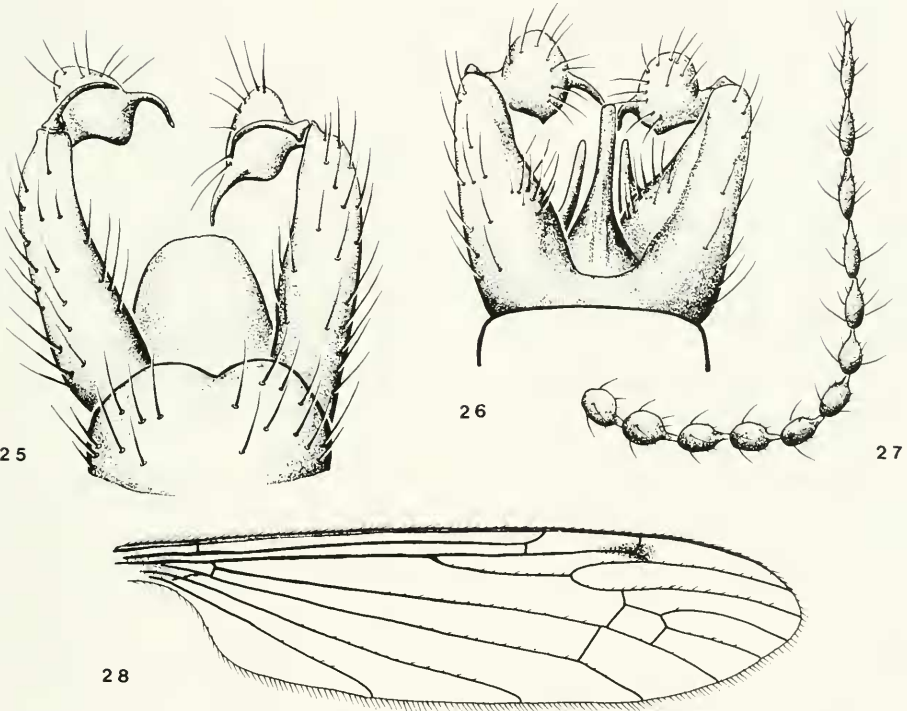
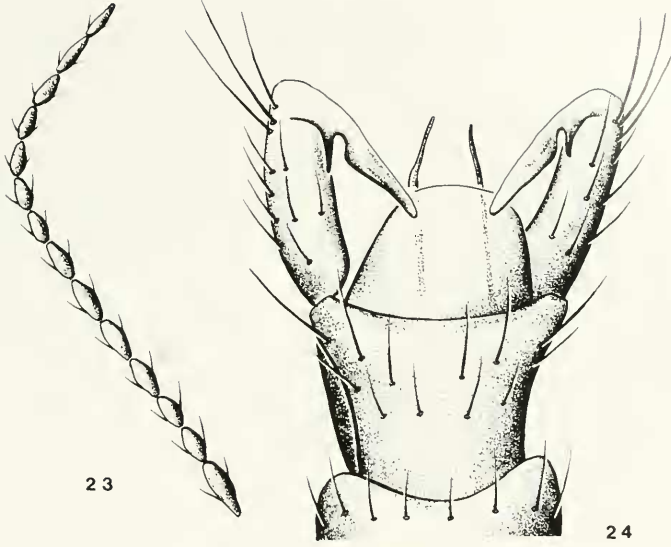
Dorsal part of thorax brown; prescutum with dark median stripe, pleura entirely brown. Coxae, trochanters and rest of legs brown. Femur 1: 6.1, 2: 5.6–6.0, 3: 5.5–6.6 mm, tibia 1: 7.2, 2: 6.4, 3: 6.0–6.7 mm, tarsus 2: 4.3, 3: 3.5–3.9 mm (tarsus 1 lacking in all specimens). Wing clear, without any darker marks. Venation as usual for genus (Fig. 22): Sc long, Sc_1 ending opposite one-third length of basal section of R_{2+3} , R_s slightly curved; discal medial cell twice as long as wide; cross-vein $m-cu$ proximal to base of discal cell; tip of CuA_2 not reaching tip of A_1 . Halter brown.

Abdomen and genitalia brown or greyish brown; genitalic details in Fig. 24.

Female.—Generally similar to male. Body length 8.2 mm, wing length 5.85 mm. Femur 1: 8.2, 2: 8.0, 3: 8.1 mm; tibia 1: 9.2, 2: 8.0, 3: 7.2 mm, tarsus 1: 7.1, 2: 6.2, 3: 6.2 mm. Venation differs from male by petiolate cell r_2 (Fig. 21)(variation of venation in this wing region is also known in extant species). Ovipositor protrudes beyond wing tips.

Examined material.—Holotype ♂, number D-7-208, deposited in the Poinar collection.

Paratypes: ♂, number D-7-208A; ♂,



Figs. 23–28. 23–24, *Trentepohlia (Paramongoma) agri*. 23, Flagellum of antenna, holotype. 24, Male genitalia, dorsal view, holotype. 25–28, *Dicranomyia (Dicranomyia) fera*. 25, 26, Male genitalia. 25, Dorsal view, paratype. 26, Ventral view, holotype. 27, Antennal flagellum, holotype. 28, Wing, paratype.

number D-7-208B (totally damaged genitalia); ♂ and ♂ fragments, number D-7-208C, ♀, number D-7-208D, (damaged wings), fragments, 2♂, numbers D-7-208E and D-7-208F, number D-7-208G and D-7-208H, all in the Poinar collection. El Valle area of Dominican Republic, Nr. ANSP 79760.

Discussion.—Four extant species belonging to the subgenus *Paramongoma* Brunetti, 1911, are known from the Antilles: *T. dominicana* Alexander, 1947; *T. manca* (Williston, 1896); *T. pallida* (Williston, 1896) and *T. niveitarsis* (Alexander, 1913). The new species, *T. (Paramongoma) agri*, is the commonest species of crane fly in Dominican amber.

LIMONIINAE

Dicranomyia (Dicranomyia) fera Podenas and Poinar, new species (Figs. 25–28)

Diagnosis.—Size normal for genus. General body coloration brown. Wings longer than body. Wing with distinct elongate oval stigma; inner gonostylus small, approximately oval with beak-like spineless rostrum; antennal flagellum with short pedicel and verticils not exceeding the length of the respective segments.

Male.—Body length 4.25 mm. Head, rostrum, palpi and antennae brown. Antenna 14-segmented, reaching slightly beyond base of abdomen if bent backwards; scape elongate, about three times as long as thick; pedicel spherical; first flagellar segment (comparatively short) about same length as pedicel; proximal flagellomeres subglobular, remaining segments ranging from oval to elliptical, apical flagellomeres with short elongate tips (Fig. 27); flagellum with short verticils not longer than respective segments and with numerous stout setulae; apical flagellomere slightly longer than preceding segment.

Thorax yellowish brown, prescutum with dark median stripe. Coxae, trochanters and rest of legs yellowish brown or dark brown

(due to oxidization in resin). Femur 1: 3.3, 2: 4.4 mm, tibia 1: 4.5, 2: 4.2 mm, tarsus 1: 4.6 mm (fore leg preserved in specimen D-7-192 and midleg in specimen D-7-192A). Wing clear, with distinct, diffuse stigma, 4.4–5.3 mm long. Venation as usual for genus (Fig. 28): Sc relatively elongate, Sc_1 ending opposite $\frac{1}{5}$ length of Rs , Sc_2 about twice its length from tip of Sc_1 , Rs very slightly curved, nearly 2.5 times basal deflection of R_{4+5} ; discal medial cell relatively short; cross-vein $m-cu$ straight, more than half as long as distal section of Cu , placed shortly before fork of M . Halter light brown.

Abdomen brown. Genitalia grayish brown, details in Figs. 25, 26: ninth tergite with shallow median emargination; gonocoxite long, outer gonostylus long and slightly curved; inner gonostylus small, oval shaped with beak-like, spineless rostrum; parameres with long and nearly straight apical appendage (as seen in ventral view of genitalia of specimen No D-7-192); aedeagus long and narrow.

Female.—Unknown.

Examined material.—Holotype ♂, number D-7-192, deposited in the Poinar collection.

Paratype ♂, number D-7-192A, deposited in the Poinar collection.

Discussion.—Both this species and the following one are unique in the genus by lacking rostral spines on the inner gonostylus. Recent species of *Dicranomyia* Stephens, 1829, distributed in adjacent islands are: *D. borinquenia* (Alexander 1968); *D. brevivena torrida* (Alexander 1932); *D. calliergon calliergon* (Alexander 1939); *D. calliergon polygrapha* (Alexander 1939); *D. distans* Osten Sacken, 1859; *D. divisa* (Alexander 1929); *D. farri* (Alexander, 1964); *D. indefensa* (Alexander, 1939); *D. lewisi* (Alexander 1964); *D. reticulata* (Alexander 1912); *D. torulosa* (Alexander 1968) and *D. trinitatis* (Alexander 1931). Both new species clearly differ from all other described species by the male genitalia, especially the naked rostrum of the

inner gonostylus. Alexander described *Dicranomyia* as a subgenus of *Limonia* Meigen, 1803, but according to current thought *Dicranomyia* is a distinct, large and widely distributed genus (Savchenko et al. 1992).

***Dicranomyia (Dicranomyia) lema*
Podenas and Poinar, new species**
(Figs. 29–32)

Diagnosis.—Size normal for genus. General body coloration brown. Wings longer than body. Ninth tergite with broad emargination; outer gonostylus long and slightly curved; inner gonostylus with enlarged oval shape with long spineless rostrum; can be separated from the previous species by the relatively short *Sc* vein with *Sc*₁ ending near one-third the length of *Rs* and *Sc*₂ about the same length as *Sc*₁ (in *D. fera*, *Sc* is relatively long and *Sc*₁ ends opposite 4/5th the length of *Rs*).

Male.—Body length 4.2–7.0 mm. Head and rostrum brown, palpi and antenna dark brown proximally, lighter distally. Antenna 14-segmented, 0.8–1.3 mm long, reaching wing base if bent backwards; scape elongate; pedicel spherical; first flagellar segment about same length as pedicel; proximal flagellar segments oval, apical segments elongate and nearly cylindrical (Figs. 30, 31); individual segments with short pedicels in specimen from ANSP collection, not seen in other specimens; flagellum with short verticils, usually not longer than respective segments; apical segment large, nearly as long as preceding segment.

Dorsal part of thorax brown; pleura yellowish brown with darker spots. Coxae, trochanters and rest of legs brown. Femur 1: 3.1–5.5, 2: 3.7–6.3, 3: 6.5 mm, tibia 1: 3.8–6.3, 2: 6.9, 3: 7.0 mm; tarsus 3: 6.5 mm (tarsus 1 and 2 missing in both specimens). Wing clear, brownish, with slightly darker marks along veins, without stigma, 4.6–7.1 mm long. Venation as usual for genus (Fig. 32): *Sc* relatively short, *Sc*₁ ending near one-third length of *Rs*, *Sc*₂ about same length as *Sc*₁, *Rs* very slightly curved, nearly straight, almost three times basal deflec-

tion of *R*₄₊₅; *R*₂ at tip of *R*₁; discal medial cell relatively short; crossvein *m-cu* straight, slightly longer than distal section of *CuA*₂, placed shortly beyond fork of *M*. Haltere brownish.

Abdomen and genitalia yellowish brown with distal margins of tergites and sternites darker; details evident in Fig. 29: ninth tergite with broad emargination; outer gonostylus long and slightly curved; inner gonostylus oval with long spineless rostrum; paramere with long and nearly straight apical appendage; aedeagus long and narrow.

Female.—Unknown.

Examined material.—Holotype ♂, number D-7-193, deposited in the Poinar collection.

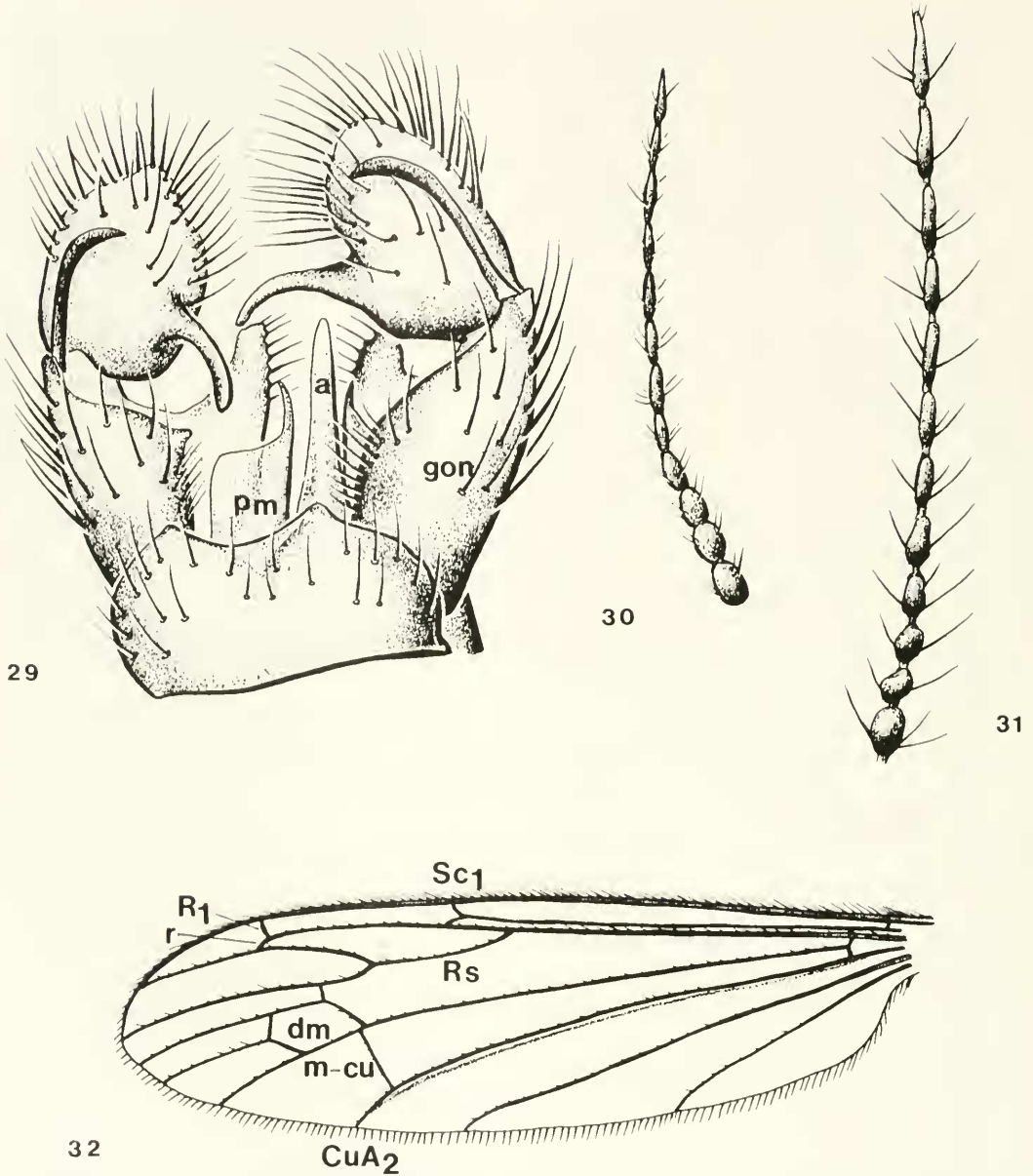
Paratypes: ♂, number D-7-194 deposited in the Poinar collection; ♂, El Valle area of Dominican Republic, Nr. ANSP 79761 (abdomen of this specimen, especially distally, is swollen from air bubbles).

***Rhipidia (Rhipidia) mira* Podenas and
Poinar, new species**
(Figs. 33–36)

Diagnosis.—Size normal for genus. General body coloration brown to yellowish brown. Proximal flagellomeres bipectinate, with outer segments elongate cylindrical. Ninth tergite with nearly straight distal margin; gonocoxite elongated with ventro-mesal projection; outer gonostylus long and slightly curved at apex. Wing pattern with six dark spots in costal region and weaker spots on wing apex and cross-veins.

Male.—Body length about 5.3 mm, wing length 5.1 mm. Head dark brown, rostrum and palpi (Fig. 35) brown. Antenna brown proximally, brownish yellow distally, 14-segmented, reaching wing bases if bent backwards; scape elongate, about twice as long as thick; pedicel ovoid; first flagellar segment comparatively short, about same length as scape; proximal flagellomeres bipectinate, outer segments elongate cylindrical (Fig. 34); flagellar verticils as long as respective segments.

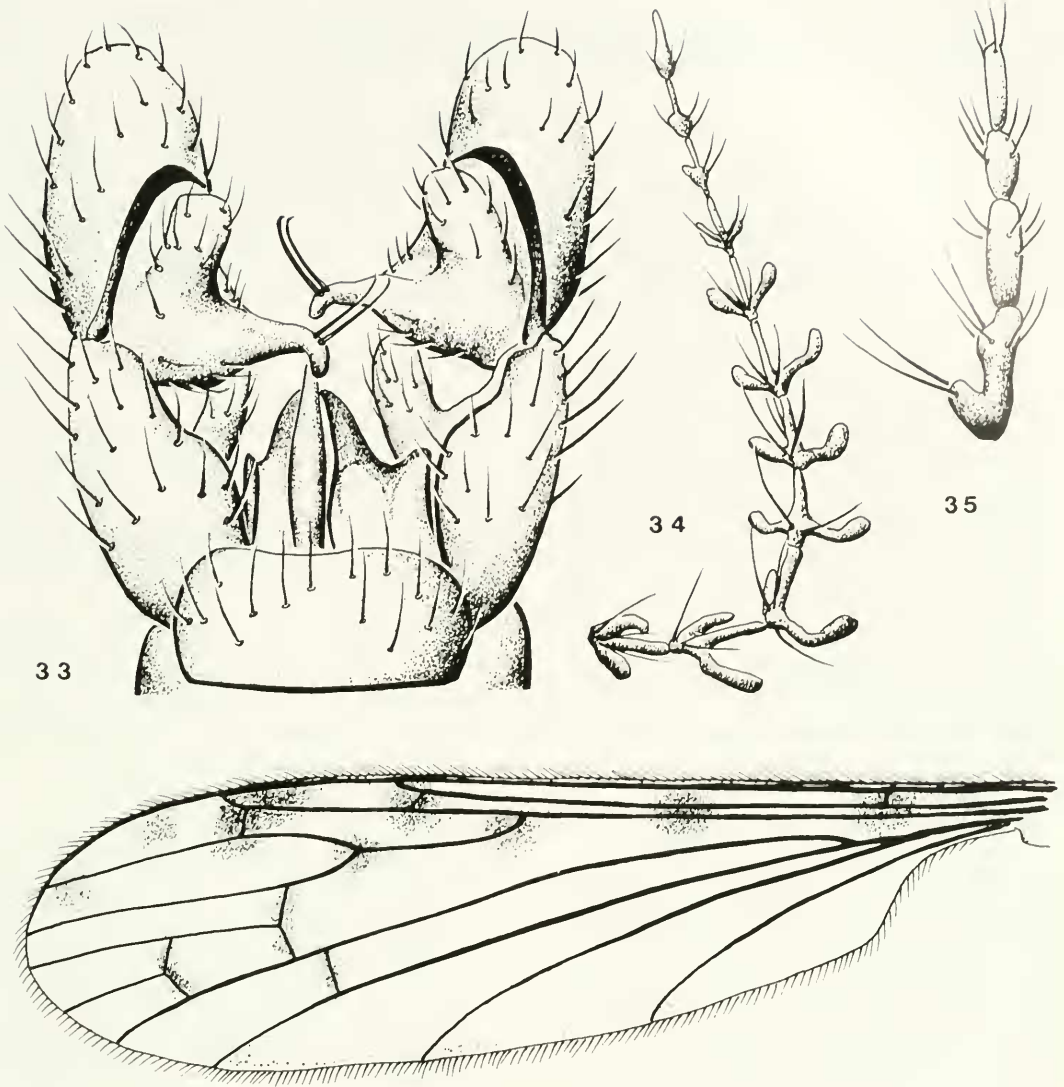
Thorax dorsally and laterally brown.



Figs. 29-32. *Dicranomyia (Dicranomyia) lema*. 29, Male genitalia, dorsal view, holotype. 30, Flagellum of antenna, holotype. 31, Flagellum of antenna, paratype. 32, Wing, holotype. (See Materials and Methods for abbreviations.)

Coxae dark brown, rest of legs yellowish brown with darker tips on femora. Femur 1: 3.55 mm, tibia 1: 4.4 mm (other legs near body, but not clear which is mid or hind). Wing with distinct oval spots along costal margin and darkening along crossveins

(Fig. 36), 5.1 mm long. Venation usual for genus: Sc relatively elongate, Sc_1 ending opposite $\frac{1}{5}$ length of R_s , Sc_2 about its length from tip of Sc_1 , R_s very slightly curved, nearly twice as long as basal deflection of R_{4+5} ; R_2 near tip of R_1 ; discal medial cell



Figs. 33-36. *Rhipidia (Rhipidia) mira*, holotype. 33, Male genitalia, dorsal view. 34, Flagellum of antenna. 35, Maxillary palpus. 36, Wing.

about twice as long as wide; crossvein *m-cu* straight, nearly 3.3 times shorter than distal section of *CuA*₂, placed clearly before fork of *M*. Halter brownish yellow.

Abdomen yellowish brown with caudal margins of tergites darkened. Genitalia yellowish brown; details evident in Fig. 33: ninth tergite with nearly straight distal margin; gonocoxite elongated with ventro-mesal projection; outer gonostylus long and

curved at apex; inner gonostylus large, oval with two long rostral spines; paramere wide basally and sharp distally with long and nearly straight apical appendage; dorsal protuberance on inner gonostylus near base of rostrum; aedeagus long and narrow.

Female.—Unknown.

Examined material.—Holotype ♂, number D-7-200, deposited in the Poinar collection.

Discussion.—Extant species of *Rhipidia* Meigen, 1818 distributed in adjacent islands are: *Rh. bellingeri* (Alexander 1964); *Rh. bipectinata* Williston 1896; *Rh. calverti* Alexander 1912; *Rh. domestica domestica* Osten Sacken 1859; *Rh. pratti* (Alexander 1950); *Rh. schwarzi* Alexander 1912; *Rh. subcostalis* Alexander 1922; *Rh. subpectinata subpectinata* Williston 1896; *Rh. tetraleuca* (Alexander 1937); *Rh. unipectinata* Williston 1896 and *Rh. willistoniana* (Alexander 1929). Alexander described *Rhipidia* as a subgenus of *Limonia* Meigen 1803, but some consider *Rhipidia* as a separate, large and widely distributed genus (Savchenko et al. 1992). These and other recent, undescribed *Rhipidia* species, which the senior author examined from the Antilles, usually have simple antennae, not as in the present fossil. *Rhipidia mira* differs from all recent species not only by the male genitalia, but also by the shape of the palpi. The wing pattern is more similar to that of North American species.

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